Experts: Clinical Terminology Mapping Will Be Essential Tool

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Clinical terminology mapping is essential for creating an effective nationwide health information infrastructure, Simon Cohn, MD, MPH, told attendees at the first-ever institute on clinical vocabulary mapping methods, held October 15. Cohn, chair of the National Committee for Vital and Health Statistics and associate executive director of Kaiser Permanente, said that mapping between terminologies will help reduce the high cost of administrative overhead and billing, make data readily available for comparison to national and international benchmarks, and accelerate the adoption of electronic health records (EHRs) and the adoption of patient medical record information standards.

Cohn's vision for the future includes the routine use of standardized core clinical terminologies in EHRs, high-quality terminology maps that are accepted and used by payers and providers, tighter integration between clinical and administrative aspects of healthcare and terminologies, and rules-based engines to help ensure reliability and reusability of data. He challenged attendees to become enablers of this new technology.

Building Better Mapping

The institute included track sessions for both technical and organizational issues. Faculty for both the technical and organizational tracks consisted of leaders in the field of terminologies and terminology mapping, including Jim Campbell, MD, from the University of Nebraska; Kent Spackman, MD, PhD, of Oregon Health and Science University; Robert Dolin, MD, of Kaiser Permanente; Michael Lincoln, MD, of the Veterans Health Administration; and Stuart Nelson, MD, of the National Library of Medicine.

At the conclusion of the day, Nelson summarized the technical presentations. He noted it was important to define a terminology map as being from one vocabulary to another to enable the reuse of data. A map should also have the characteristics of being computable and purposeful. Although there are many reasons to create a map—such as reimbursement, epidemiology, and longitudinal data analysis—

Nelson noted that overall maps are created in order to increase efficiency, free up humans to do those things only humans can do, and improve quality. Participants discussed the many different technical approaches to mapping, with many recommending that user experiences with the UMLS be leveraged. It was also noted that use of the terminology maps would lead to their improvement.

Both faculty and participants made recommendations to facilitate more and better automatic mapping. For example, it was recommended that the map interact with the EHR information model and vendor systems and be computable. To achieve this, the industry needs participation from terminology developers, along with map validation by stakeholders and cooperation from vendors. Vendors are very important to this process, Nelson said, as they will distribute the terminology maps to users, who will ultimately test their adaptability and usability.

Participants in the technical trade track agreed that to move terminology mapping forward, it must meet the following criteria, as originally defined by the SNOMED mapping work group led by Jim Campbell:

- Understandable
    - All mappings have stated purpose and audience
    - Map documentation is complete, clear, and unambiguous
    - Mappings define source and target domain scope for the map
- Reproducible

    - Mappings employ authoritative reference sources uniformly
    - Documentation defines all assumptions, heuristics, and procedures required to manage context and create the map
    - All terminology developers move to compliance with sound principles of permanence and version management
    - A standard for the EHR static information model is developed and employed in mapping procedures
- Useful

Use Cases, Training, and Maintenance Issues

Susan Fenton, MBA, RHIA, of AHIMA, summarized the organizational track by noting that the level of quality control needed for terminology maps is extraordinarily high. The use case, or purpose for the map, must be fully specified at a detailed level. Questions such as who is responsible for the map, whether a one-way or two-way map is needed, and whether the needs of third-party stakeholders should be considered will help define the use case. In addition, the use case should consider any technical issues concerning both the target and source vocabularies.

Training is essential to high-quality maps. The organizational track participants noted that there is no one profession already trained to fill terminology roles. The training required goes beyond understanding the vocabularies. It includes understanding data and information modeling, SQL database basics, and extensible markup language (XML).

Maintenance and updating were also raised as issues for terminology maps. For example, the current schedule for terminology and classification system updates in the US is difficult for all stakeholders and needs to be simplified. Standard procedures for guidelines, heuristics, logs, version control, and backups are necessary to ensure the stability of dynamic terminology maps.

Maps will also play an important role as organizations deal with legacy data. Almost all healthcare organizations will have to employ maps to continue to access and use their legacy data into the future. For this reason, terminology maps and data mapping are sure to play a large role in the future of HIM.

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